The Thermo Scientific KingFisher® Family

Accelerate your genomics and proteomics throughput with the Thermo Scientific KingFisher purification systems

The Thermo Scientific KingFisher family – high speed purification of proteins, nucleic acids and cells

Our KingFisher range of exciting high speed DNA, RNA and protein purification systems are designed to resolve all your purification problems, now and in the future. Based on revolutionary patented magnetic separation technology, KingFisher systems enable you to process any sample - proteins, nucleic acids and cells – from virtually any source including blood, cell cultures, tissue lysates, soil and faeces with guaranteed sample integrity. Truly amazing operational speeds allow up to 96 samples to be processed in under 15 minutes.

The Thermo Scientific KingFisher purification system offers you:

- Fully automated high speed purification
- High throughput 96 sample processing
- Purification of any sample from any source
- Pre-defined and custom protocols
- Easy operation via instrument or external PC

The KingFisher family comprises of three systems, KingFisher, KingFisher mL and KingFisher Flex - covering working volumes from 20-5000 µl. Each system consists of an instrument, specially designed plastics and easy-to-use software. With optimized protocols you can be up and running in a matter of minutes.

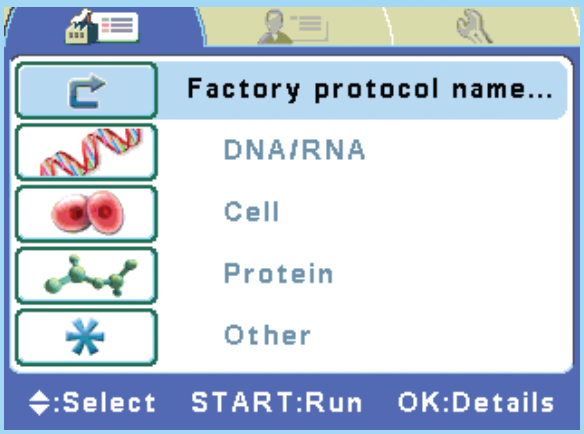
- KingFisher – 20-200 µl in microstrips, up to 24 samples per run
- KingFisher mL – 50-1000 µl in tube strips, up to 15 samples per run
- KingFisher Flex – 20-5000 µl in 96 and 24 deep well, 96 KF, and 96 PCR plates, up to 96 samples per run

Solve those purification problems

Speed and sample purity continue to be a major concern to genomics and proteomics researchers. The sheer volume of work involved in genome and protein mapping means processing speed is essential. Likewise, unsatisfactory results on even the most sophisticated analysers are increasingly linked to poor initial sample quality. However the variety of samples being used, from rare cell types and mRNA transcripts to increasingly large and delicate protein complexes, presents a real challenge. On all counts, KingFisher automated purification systems ensure impurities are removed.

The KingFisher range of applications includes:

- Genomics & proteomics
- Target identification
- Forensics
- Biomarker discovery
- Quality control
- Veterinary assays



Work at unparalleled speed

The processing speed of KingFisher systems is unparalleled and stems from their advanced magnetic particle processing technology which uses magnetic rods to move sample particles through the various purification phases – binding, mixing, washing and incubation - eliminating liquid handling and increasing automation results in a reliable and robust technique. The overall efficiency brings speed for true market-leading throughput. The top of the range KingFisher Flex can purify 96 samples in just 15-30 minutes. Equally important, sample cross contamination and reagent cross-over is effectively eliminated by the automated purification process.

Adapt to your own routine

KingFisher enables you to increase your workflow flexibility. Pre-defined application protocols are available for many existing magnetic particle-based methods. Additionally, it is easy to customise existing protocols or create entirely new ones using the intuitive Thermo Scientific BindIt software. Protocols can then be run either directly via the KingFisher instrument or remotely via a PC.

See instant benefits in productivity

Installing a KingFisher system will make an instant impact on your work. You will be able to purify samples at speeds you never believed possible, with minimal hands-on requirement as the automation takes over. KingFisher will leave you free to concentrate on more involved downstream analysis.

The Thermo Scientific KingFisher family

Thermo Scientific KingFisher Flex

Using either a 96 or 24 plate format, KingFisher Flex provides the fastest and easiest way to purify genomic DNA or RNA and proteins from a variety of sample material. Supplied with predefined protocols, KingFisher Flex also allows you to create your custom made protocols for special applications.

Samples/run	96 or 24
Working volume in µl 24-format 96-format	 200-5000 20-1000

Thermo Scientific KingFisher

KingFisher gives you the ability to purify small-scale samples. All purification and processing steps are carried out in microplates with simple push button operation.

Samples/run	24
Working volume in µl	20-200

Thermo Scientific KingFisher mL

KingFisher mL is your choice for high volumes. It allows all purification and processing steps to be carried out in a single strip of five tubes. Being able to go as low as 50 µl to release target molecules, enables cells and proteins from larger starting volumes to be isolated and concentrated simultaneously.

Samples/run	15
Working volume in µl	50-1000

Thermo Scientific KingFisher Plastics

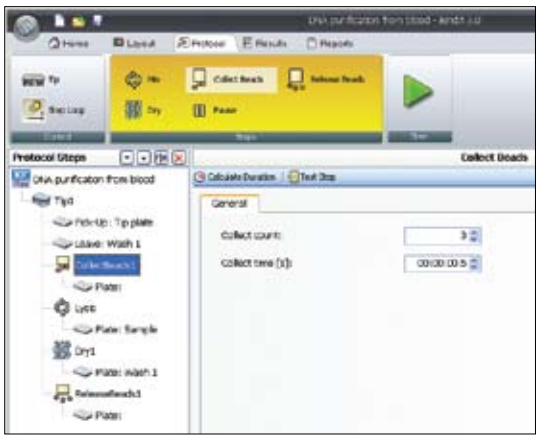
KingFisher instruments utilise disposable plastics made of polypropylene and they are specially designed for the processing and isolation of target molecules. The plastics are ideal for magnetic particle processing due to their low binding affinity for biomolecules. KingFisher mL processes samples in tube strips whilst KingFisher and KingFisher Flex utilise specially designed microplates. The magnets are protected by disposable tip combs. The design of these specialist plastics enables excellent recovery of magnetic particles.

Thermo Scientific Microtiter® deep well plates, KingFisher 96 KF plates and KingFisher Flex 24 deep well plates are all specially designed for KingFisher Flex and enable efficient processing and mixing of magnetic particles. Both the yield and quality of the isolated DNA/RNA is significantly improved with special KingFisher plates. In addition fully skirted rigid PCR plates can be used with KingFisher Flex.

- High resistance to organic solvents
- High temperature resistance (-196 to +121 °C)
- Sealable with adhesive films
- 96 deep well plate sealable with cap mat

Thermo Scientific BindIt Software - the perfect complement to a peerless system

BindIt Software is designed to allow you to develop custom made protocols or modify existing protocols for your own applications, allowing increased flexibility. Additionally, BindIt Software enables you to set user control access levels, advanced protocol management, sample information and clear reporting. Pre-defined and validated purification protocols are available for different applications, offering the possibility to choose the best possible method for a sample process. The BindIt Software also enables the KingFisher Flex to interface with liquid handling, robotics and plate stacking instruments, providing a fully automated solution and the highest throughput.



KingFisher Flex 24 deep well magnet head and tip comb

KingFisher Flex 24 deep well plate

KingFisher Flex 96 deep well magnet head and tip comb

Microtiter deep well 96 plate

KingFisher Flex 96 KF plate

KingFisher Flex 96 KF magnet head and tip comb

KingFisher Flex 96 KF plate

KingFisher Flex PCR magnet head and tip comb

96 PCR plate

KingFisher Flex 96 KF plate

KingFisher Flex magnetic heads with tip combs and and suitable microplates.

Thermo Scientific KingFisher applications

KingFisher provides a quick and easy solution to achieve high quality and reproducible results in the purification of nucleic acids, proteins and cells with minimal hands-on time. It is an open and flexible system with a wide working volume range, allowing the user to choose any available magnetic particle based purification kit suitable for the application. With many applications available on the KingFisher website (www.thermo.com/kingfisher) it is easy to create a new protocol for a specific application with the BindIt Software.

Flexible solutions for nucleic acid purification

Magnetic particle based kits offer excellent performance for the purification of DNA and RNA with KingFisher, KingFisher mL or KingFisher Flex. The range of starting material for nucleic acid research is broad from 1ml of blood for routine testing to very small samples e.g. from forensic surface and contact swabs, hair and cigarette butts. KingFisher enables you to isolate DNA or RNA in sufficient quantities from all kinds of material sources such as serum, blood, bacteria, cell culture, tissue, soil or faeces. Plant kits can be used to purify DNA from several plant species and sources e.g. leafs and seeds. Using magnetic bead based separation technology ensures the resulting DNA and RNA is free of protein, nucleases and other contaminants ensuring your purified nucleic acid samples are ready to use in downstream applications.

With KingFisher instruments it is possible to save time and minimise manual handling steps including pipetting, centrifugation and mixing. Automation of the purification process and elimination of any liquid handling steps result in reliable and robust operation.

High speed protein purification

KingFisher can be used to purify all kinds of proteins from recombinant to therapeutic antibodies. The magnetic separation technology solves the problem of purifying recombinant proteins with highly complex structures and varying physiochemical properties. The KingFisher technology and range of chromatography beads enable routine purification of antibodies/antigens, pharmaceuticals and vaccines using any kind of host cell – mammalian, insect, yeast, bacteria or transgenic animals/plants. KingFisher can also significantly improve the phage display process by fully automating the cycles of the biopanning phase.

The BindIt Software allows you to develop your own robust protocols for other protein applications like glycoprotein purification, protein arrays, protein interaction or protein phosphorylation studies.

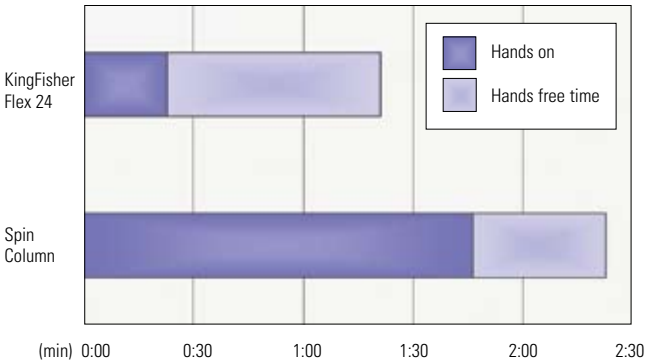


Figure 1. The time used for purification of DNA from 1ml of blood. The comparison of isolating 24 samples between KingFisher Flex and a column based isolation method.

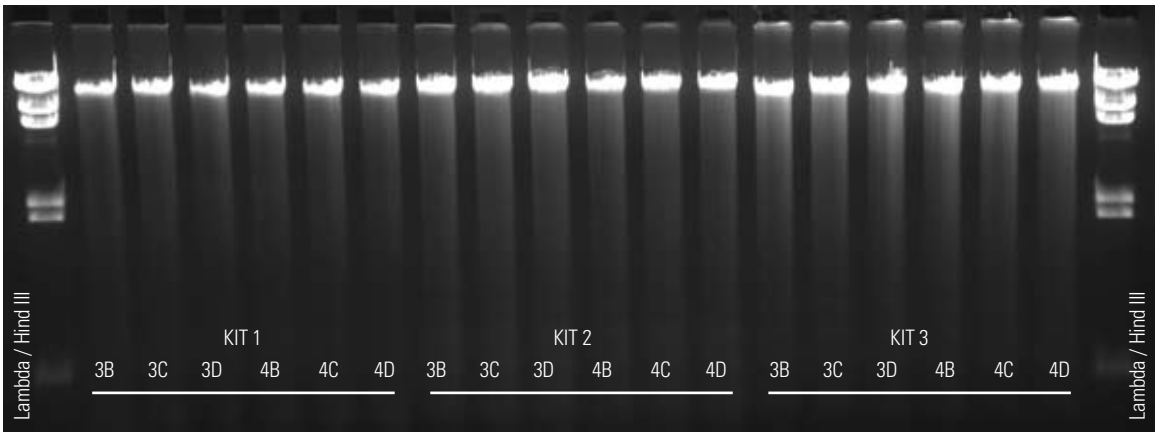


Figure 2. The quality and quantity of genomic DNA isolated from blood with KingFisher Flex is excellent.

KingFisher purification process

Figure 3. Rapid and robust sample preparation.

Technical Specifications

	Thermo Scientific KingFisher Flex	Thermo Scientific KingFisher mL	Thermo Scientific KingFisher
Processing volume	96: 20-1000 µl 24: 200-5000 µl	50-1000 µl	20-200 µl
Capacity samples/run	96 or 24	15	24
Collection efficiency of the particles	≥95%	≥95%	≥99%
Magnetic rods	96 or 24	15	24
Plate types	24 deep well plate (200 – 5000 µl), 96 deep well plate (50 - 1000), KingFisher 96 plate (20 – 250 µl), PCR plate (20 – 100 µl)	Special tube strip, 1 x 5 tubes, 1000µl tube	Special microstrips, 1 x 8 wells , 8 x 12 grid format, 100 & 200 µl well volumes
Tip combs	Special design, 96 or 24 format	Special design, 1 x 5 format	Special design, 1 x 12 format
Heating temperature	Heating block temperature from room temperature to +115°C	Ambient, no heating	Ambient, no heating
Magnetic particle size	ca. > 1 µm	ca. > 1 µm	ca. > 1 µm
Keyboard / Display	START/STOP/PAUSE/OK, four arrow keys, two keys to rotate the turntable	START/STOP/two cursor keys/LCD	START/STOP/two cursor keys/LCD
Internal Software	Space for ca. 100 internal protocols	Space for ca. 8 internal protocols	Space for ca. 8 internal protocols
BindIt Software compatibility	yes	yes	yes
Computer interface	USB or serial RS-232C port	Serial RS-232C port	Serial RS-232C port
Robot compatibility	Yes	No	No
Size WXDXH mm	ca. 680 x 600 x 380	290 X 290 X 310	290 X 290 X 310
Weight kg	28	10	10
BindIt Software specifications:			
Supported operating system	Microsoft Windows XP Professional with SP2 or later and Vista. Internet Explorer 6.0 or later must be installed.		
Used to	create, modify and run the protocols with KingFisher instruments		

Thermo Scientific KingFisher Ordering Information

5400000	KingFisher, Magnetic Particle Processor, 100-240 V, 50/60 Hz (for microplates)
5400050	KingFisher mL, Magnetic Particle Processor, 100-240 V, 50/60 Hz
5400610	KingFisher Flex, Magnetic Particle Processor, with 96 PCR head, 100-240V, 50/60 Hz
5400620	KingFisher Flex, Magnetic Particle Processor, with KF head, 100-240V, 50/60 Hz
5400630	KingFisher Flex, Magnetic Particle Processor, with 96 deep well head, 100-240V, 50/60 Hz
5400640	KingFisher Flex, Magnetic Particle Processor, with 24 deep well head, 100-240V, 50/60 Hz
Software:	
5189010	BindIt Software, CD and user manual
Accessories and spare parts:	
24074411	KingFisher Flex 96 PCR head and heating block
24074421	KingFisher Flex 96 KF head and heating block
24074431	KingFisher Flex 96 deep well head and heating block
24074441	KingFisher Flex 24 deep well head and heating block
11273100	KingFisher mL tube tray
24073180	KingFisher mL microtube tray
24074410	KingFisher Flex 96 PCR head
24074420	KingFisher Flex 96 KF head
24074430	KingFisher Flex 96 deep well head
24074440	KingFisher Flex 24 deep well head
24075410	KF Flex 96 PCR heating block
24075420	KF Flex 96 KF heating block
24075430	KF Flex 96 deep well heating block
24075440	KF Flex 24 deep well heating block
Consumables for KingFisher:	
97002070	KingFisher tip comb, 50 pcs
97002080	KingFisher plate 100 µl, 50 pcs
97002084	KingFisher plate 200 µl, 50 pcs
97002090	KingFisher plastics 100 µl 8-pack, 8 plates (100 µl) + 8 tip combs / box
97002094	KingFisher plastics 200 µl 8-pack, 8 plates (200 µl) + 8 tip combs / box
Consumables for KingFisher mL:	
97002111	KingFisher mL tip comb, 800 pcs
97002121	KingFisher mL tube, 900 pcs (20x45 pcs)
97002131	KingFisher mL Combi 60 (tubes and tip combs for 60 samples)
97002141	KingFisher mL Combi 240 (tubes and tip combs for 240 samples)
Consumables for KingFisher Flex:	
97002514	KingFisher Flex 96 tip comb for PCR magnets, 80 pcs
97002524	KingFisher Flex 96 tip comb for KF magnets, 100 pcs
97002534	KingFisher Flex 96 tip comb for deep well magnets 100 pcs
97002610	KingFisher Flex 24 deep well tip comb and plate, 50 pcs of each
97002540	KingFisher Flex 96 KF plate (200µl) 48 pcs
95040450	Microtiter deep well 96 plate, V-bottom, polypropylene 50 pcs
95040460	Microtiter deep well 96 plate, V-bottom, sterile polypropylene 50 pcs
95040470	KingFisher Flex 24 deep well plate, 50 pcs
95040480	KingFisher Flex 24 deep well plate sterile, 50 pcs

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